

**Before the  
FEDERAL COMMUNICATIONS COMMISSION  
Washington, D.C. 20554**

In Matter of	)	
	)	
Spectrum Horizons	)	ET Docket No. 18-21
	)	
Battelle Memorial Institute Petition for	)	RM-11713
Rulemaking to Adopt Fixed Service Rules in the	)	(Terminated)
102-109.5 GHz Band	)	
	)	
Request for Waiver of ZenFi Networks, Inc. and	)	WT Docket No. 15-245
Geneva Communications LLC	)	(Terminated)
	)	
James Edwin Whedbee Petition for Rulemaking to	)	RM-11795
Allow Unlicensed Operation in the 95-1,000 GHz	)	
Band	)	

**Comments of the IEEE Geoscience and Remote Sensing Society  
Technical Committee on Frequency Allocations in Remote Sensing**

The Institute of Electrical and Electronics Engineers (IEEE) Geoscience and Remote Sensing Society (GRSS) Technical Committee on Frequency Allocations in Remote Sensing (FARS-TC) submits the following comments on the Notice of Proposed Rulemaking (NPRM) on the Use of Spectrum Bands Above 95 GHz For Innovative Radio Services.

In paragraph 45, the Notice cites a reference by Kurner et al., 2013, which, in turn, refers to a technical article by Priebe et al., 2012. Therefore, the original study is now six years old and more recent analyses should be performed to verify that the conclusions from the 2012 study are still valid.

In paragraph 56 of the NPRM, the Commission seeks comments on potential unlicensed operations in the bands 122-123 GHz, 174.8-182 GHz, 185-190 GHz and 244-246 GHz.

As noted in the Notice and reported in Annex B, some of these bands are currently employed by EESS sensors and will continue to be used by future EESS sensors. Also, some of these bands correspond to or include allocations to passive science services. Passive services are especially sensitive to artificial transmission and, even at the current power level limits, if a large number of unlicensed operators were transmitting at the same time, the aggregate interference could potentially disrupt EESS operations. Given the current trend in growth of wireless commercial services, the number of emitters will likely reach large numbers. Therefore, we recommend that the permitted power levels in those bands not be increased. It should also be noted that EESS sensors operating in this region of the spectrum are both ground-based and space-based. Unlike operations in the 57-71 GHz bands, atmospheric attenuation in the above-mentioned bands is highly variable due to water vapor content. An important consideration is that unlicensed operations in these bands are to be considered in terms of maximum aggregate level of emissions within EESS bands. We urge consideration to maintain spectral segments that are free from emissions or “excluded regions” in order to avoid potential impact to EESS observations from aggregate effects of unlicensed emitters such as the segments noted in this paragraph that are highly utilized within EESS.

In paragraph 57 of the NPRM, it is noted that “116-122.25 GHz band is allocated to passive services such as the EESS and SRS (passive) as well as the ISS which is used for communications between satellites with footnote 5.562C limiting ISS emission levels below the EESS (passive) protection criteria. The passive services would likely be compatible only with low density deployments and low power unlicensed uses because of the high sensitivity of these types of passive receivers.” We do not support unlicensed use of this spectrum, however, in the event it is permitted, we encourage effective limitations in the density of emitters in order to ensure continued compliance with footnote 5.562C.

In paragraph 59, the Notice reads: “Whedbee also specifies that unlicensed operations be limited to indoors only and that transmitters not be deliberately pointed at windows in a

number of bands used by the RAS, EESS (passive), and SRS (passive)”. We note that several bands above 95 GHz are allocated to EESS services, including bands dedicated to passive uses only. We also note the extreme complexity in enforcing that unlicensed operators keep their transmitters indoors and that these be pointed away from windows. In order to preserve existing and planned EESS applications in these bands, we recommend that unlicensed operations in those bands be prohibited. Our recommendation is particularly strong for the bands dedicated to passive uses that are, by nature, much more sensitive to transmissions from ground operators.

Respectfully,

A handwritten signature in black ink, reading "Paolo de Matthaeis". The script is cursive and fluid, with the first name "Paolo" and last name "de Matthaeis" clearly distinguishable.

Paolo de Matthaeis

Chair of the Frequency Allocations in Remote Sensing Technical Committee  
IEEE Geoscience and Remote Sensing Society